

USSN 09/226,418
Amendment Responsive to Office Action of November 5, 2003
February 5, 2004
A-1670

REMARKS

Claims 1 and 12 have been amended, claim 11 has been canceled, and new claim 23 has been added. Thus, claims 1, 7-10, 12-13, and 20-23 are pending. Reexamination and reconsideration of the rejections of record is respectfully requested in view of the foregoing amendments and accompanying remarks.

Claims 1 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Glezer. While it is noted that claim 11 has been canceled, claim 1 has been amended to include a limitation that all of the recited plurality of apertures are disposed closer to the trailing edge than to the leading edge. This limitation is supported by the specification at, for example, page 7, lines 20-23, and in the specification (Fig. 2), wherein it is clearly disclosed that the apertures are disposed proximal to the trailing edge of the airfoil. Applicants respectfully traverse the rejection insofar as it is applied to claim 1 as amended. Clearly, the Glezer patent shows the aperture 16 as being closer to the leading edge than the proximal edge of the airfoil 91 (Figs. 6A and 6B), and Glezer et al. therefore obviously does not anticipate claim 1 as amended. Furthermore, there is no teaching in the prior art which would have rendered changing the location of all such apertures 16 in Glezer et al. to a position nearer the trailing edge, absent reference to Applicant's specification.

Applicants have found that it is advantageous to locate the recited apertures proximal to the trailing edge of the airfoil, because of the principles of physics. In particular, for example, if one considers the case wherein a clockwise gust passes below the airfoil, such that the gust-induced flow results in a more nose-down pitching motion, the claimed and disclosed active gust/flutter suppression device will be required to neutralize the gust-induced nose-down motion by applying a force F in a downward direction on the airfoil. In such an instance, the airfoil pivots about the quarter chord point on the airfoil, which is similar to the pivot on a see-saw or similar lever-based device. Since the quarter chord point on an airfoil is located substantially nearer to the leading edge than to the trailing edge of the airfoil, the most efficient location at which to apply the force F is at the trailing edge of the airfoil, since the trailing edge is located the farthest from the quarter chord point. For this reason, Applicants have disclosed that in the preferred embodiment, all of the apertures should be located along a distance comprising 5-8

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percent of the airfoil from the trailing edge. This permits an effective force F to be applied to the airfoil using minimally sized actuators.

Since the Glezer et al. patent discloses the use of a synthetic jet actuator for a different purpose than the present invention, namely, to interact with and change the free stream flow of fluid across the airfoil, this issue of force application is not present, and there is no need to locate the apertures nearer to the airfoil trailing edge.

Accordingly, it is clear that claim 1, and claims 7-10 and 13, dependent thereon, are patentable over Glezer et al.

Claims 7-8, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glezer in view of O'Neil. All of these claims depend upon patentable claim 1, and thus, the rejection is respectfully traversed.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Soviet Union Patent No. 1,761,973. Claim 12 has been amended to more particularly recite that none of the recited apertures is disposed along any other portion of the chord length, and Applicants respectfully traverse this rejection. The amendment addresses the issues raised by the Examiner on page 3 of the office action, and the comments noted above address the Examiner's concerns related to criticality. Thus, claim 12 is clearly patentable over the Soviet reference.

A terminal disclaimer accompanies this response, which addresses and overcomes the rejection based upon obviousness-type double patenting in view of Patent No. 6,543,719.

Applicants appreciate the Examiner's indication that claim 9 would be allowed if rewritten in independent form, and that claims 20-22 are allowed. Accordingly, new claim 23 has been added, which comprises claim 9 rewritten in independent form.

In view of the foregoing amendments and remarks, Applicants respectfully submit that each of the pending claims are allowable over the prior art of record, and an early notification of allowance is earnestly solicited. The Examiner is requested to contact the undersigned at the number below, should any further questions or issues need to be

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resolved.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Donald E. Stout". The signature is written in a cursive style with a large, looping initial "D".

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